REMARKS

The Office Action dated December 16, 2009, has been received and carefully noted. The above amendments and the following remarks are submitted as a full and complete response thereto.

Claims 1-5 and 7-31 are currently pending and are respectfully submitted for consideration. By this Amendment, Claims 1, 5, 7, 10, 11, 12, 17, 21, 24-26, 28, 29, and 31 have been amended. Support for the amendments to the claims can be found in the corresponding WO publication and the Specification as filed, for example, at page 3, lines 12-14 of the specification. Thus, no new matter has been added.

In the Office Action, Claims 7-12, 21, 25, 29, and 31 are objected to for informalities. In response, Claims 7, 10-12, 25, 29, and 31 are amended to overcome the objections. Thus, withdrawal of the claim objection is respectfully requested.

Claims 1-5, 7, 9, and 13-31 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 7,443,941 to Borkovsky et al. ("Borkovsky") in view of U.S. Pub. No. US 2004/0024760 to Toner et al. ("Toner"), and further in view of U.S. Patent No. 5,572,423 to Church ("Church"). Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Borkovsky in view of Toner, and further in view of Church, and further in view of U.S. Pub. No. 2002/0078024 to Bellany et al. ("Bellany"). Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borkovsky in view of Toner and further in view of U.S. Pub. No. US2004/0181758 to Murakami et al. ("Murakami")

It is noted that Claims 1, 5, 7, 10, 11, 12, 17, 21, 24-26, 28, 29, and 31 have been amended. To the extent that the grounds for rejection are still applied to the currently pending claims, they are respectfully traversed.

Claim 1, as claimed, recites a method for tolerating writing variations in input data when processing a data record for finding a counterpart in a reference data set, the method comprising the steps of, among other things, "determining, by a processor, from a set of predetermined identifier values at least one synonym candidate for the value of the data field using a candidate selection criterion, determining if a synonym candidate and the value of the data field fulfill a predetermined synonym acceptance criterion based on at least one quality parameter, wherein said at least one quality parameter takes into account writing variations that are evaluated based on differences in the value of the data field and the synonym candidate, and when the predetermined synonym acceptance criterion is fulfilled, associating the value of the data field and the synonym candidate as synonyms and automatically updating a synonym set representing known writing variations for the identifier in a computer readable database and referencing to respective entries in the reference data set by adding the value of the data field to the synonym set without intervention of a user before searching for a counterpart, and searching for the counterpart for the data record by comparing the value of the data field to entries of the reference data set and/or the synonym set after the step of determining if the predetermined synonym acceptance criterion is fulfilled, wherein, if the synonym set was updated, said comparison to the synonym set comprises comparison to the updated synonym set in the computer readable database."

Similarly, Claim 21, as amended, recites a method of updating a synonym set stored in a computer readable database to tolerate writing variation in input data when the synonym set is used in searching for counterparts for data records, wherein a data record containing a data field representing an identifier, and members of the synonym set are first identifier values referring to respective second identifier values, the second identifier values being predetermined identifier values, the method of updating the synonym set comprising the steps of: determining, by a processor, among the predetermined identifier values at least one synonym candidate relating to the value of the data field in the data record using a candidate detection criterion, determining if the value of the data field and a synonym candidate fulfill a predetermined synonym acceptance criterion based on at least one quality parameter, wherein said at least one quality parameter takes into account writing variations that are evaluated based on differences in the value of the data field and the synonym candidate, and when the predetermined synonym acceptance criterion is fulfilled, automatically adding the value of the data field to the synonym set in the computer readable database as a member referring to the synonym candidate without intervention of a user and before the synonym set is used in searching for a counterpart for the data record from the synonym set.

Similar amendments are also included in other amended independent Claims 24-26, 28-29, and 31.

Borkovsky et al. is directed to a method and apparatus for suggesting an alternative spelling for a search query. As mentioned under the heading "Field of the Invention" in column 1, Borkovsky relates to search engines, a search engine being a

computer program that helps a user to locate information. As explained in column 1, lines 25-31, using a search engine, a user can enter one or more search query terms and obtain a list of resources that contain, or are associated with, subject matter that matches those search query terms. While it is mentioned that search engines may be applied in a variety of contexts, it is also mentioned that search engines are especially useful for locating resources that are accessible through the Internet.

On the contrary, the present invention does not concern search engines for Internet searching. Instead, the present invention relates to tolerating writing variations in input data when processing a data record for finding a counterpart in a reference data set. For example, page 1, lines 20 – 22 of the description of the application discuss examples where the reference data set comprises existing customer information or official data register, and where the processing comprises checking of new customer information against the existing customer information or against information obtained from the official data register. The counterpart search is also explained e.g. in the last paragraph of page 1 of the present specification. Prior art use of identifiers, reference sets and synonym sets in counterpart searches is explained starting from line 18, page 2 to line 7, page 4. It is clear already from this part of the description that the definition "for finding a counterpart" does not refer to searching of documents from different sources such as Internet searches.

In the method of claim 1 where a data record is processed to find a counterparts a value of data field value is first determined. This step is explained, for example, in page 8, lines 14 – 33 of the specification. The Examiner has recognized that this step is not disclosed by Borkovski, but refers again to Toner in this regard. However, it would

not have even been obvious for the person skilled in the art, if starting from Borkovski, even to have a look at Toner, since these two documents relate to different operations and even if combined, would not anticipate claim 1, or the other independent claims. Whereas Borkovski relates to Internet searches, i.e. searching for documents from the Internet, Toner et al. relates to matching of names of foreign origin to names in English by converting the names in the idealized, or normalized, versions of themselves based on their true spelling in their original language. The idealization process is based on a phonetic searching method and does not even hint concerning how writing variations between synonym candidates and data fields representing identifiers of data records could be taken into account in any manner, as required in the present invention. There is nothing in Toner about updating a synonym set by adding a synonym candidate or any other term to the synonym set, and Toner does not even hint about any possibility of updating a synonym set. Thus, there is no reason for the skilled person to combine the teaching of these two documents that relate to different technologies, aims and operations, even with the benefit of hindsight of the present invention.

In the present invention, at least one synonym candidate for the value of the data field is then determined using a candidate selection criteria. This first step of synonym candidate selection is shown e.g. as step 304 in Figure 3 and step 402 in Figure 4 and is explained, for example, on page 10, line 24 to page 13, lines 5-7 and lines 29-31, and page 15, line 7 to page 16, line 2 of the application. In this step, possible synonym candidates for the value of the data field are obtained.

The next step is determining if a synonym candidate and the value of the data field fulfill a predetermined synonym acceptance criterion based on at least one quality

parameter, wherein said at least one quality parameter takes into account writing variations that are evaluated based on differences in the value of the data field and the synonym candidate. This step is shown, for example, as step 305 of Figure 3 and steps 403-405 of Figure 4, and explained for example starting from page 16, line 4 to page 19, line 23, see also the further examples page 19, line 32 to page 20, line 20. The purpose of this step is to determine if the input value is close enough to entries (the possible synonym candidates obtained in the previous step) that already exist in the system.

As is explained in the description and shown in the drawings, see for example block 306 of Figure 3 and block 406 of Figure 4 and the description page 19, lines 25-30 and page 20, lines 22-31 and page 13, lines 11-24, in response to determining that the predetermined synonym acceptance criterion is fulfilled, the value of the data field and the synonym candidate are associated as synonyms and a synonym set is automatically updated. The synonym set represents known writing variations for the identifier in a computer readable database and references to respective entries in the reference data set. Borkovski does not disclose or even hint that entries of a synonym set would in any manner refer to entries of a reference data set.

In the invention the update is done by adding the value of the data field to the synonym set and the relevant references without intervention of a user before searching for a counterpart for the data record. It is only after this update that the search for the counterpart for the data record can be performed, and the newly added synonym in the synonym set and the created reference from the updated synonym set to the reference set can be taken into account. In the counterpart search, the original value of the data field is compared to entries of the reference data set and/or the synonym set, and

therefore, as explained before, the actual search data (e.g. a word) is not anyhow amended but remains the same and it is the database subjected to the search that can have become updated because of an incorrectly spelled input term that has been determined as being nevertheless an acceptable term and is therefore added in the data to be searched. Because of this, a correct result for the counterpart search is obtained even if the input term was not correctly spelt originally because the searchable database is extended by the incorrectly spelt term before the search.

To use the street name example of the description, a user may have misspell the street name, but a correct entry can be found (and the synonym set updated for future needs) because the invention allows the system to identify the correct entries in the reference data set based on the incorrect spelling of the street name that has been automatically added in the synonym set and references to the correct entry in the reference data set.

This kind of operation is not disclosed or suggested by Borkovsky. Instead, Borkovsky only creates alternative spellings for a search query, without updating the data to be searched, and does not suggest that data to be searched could be updated by incorrect terms.

Indeed, Borkovsky teaches away from storing any incorrectly spelt terms. For example, in column 11, last paragraph, Borkovsky makes it clear in the last sentence thereof that misspellings of names shall not be added to the dictionary file thereof. Thus Borkovsky aims to ensure that no incorrect spellings become added into the dictionary, and therefore, it uses the therein described filtering of incorrect spellings. This is opposite to the present invention where the very purpose of the database updates is to

create a database where different writing variations, including incorrect spellings, are stored and can be used in further counterpart searches, including the search when the incorrect spelling was input into the system for the first time.

To expand this further, although column 11 of Borkovsky explains use of a dictionary file and possibility to add terms therein, it is clear, for example, from the first paragraph of column 12, see lines 6-11, that the search engine only adds the correct spelling "Lincoln" and not the incorrect spelling "Lincon" to the dictionary file based on its determination that the spelling "Lincoln" occurred more frequently than the spelling "Lincon" within a particular page and therefore "Lincon" is not correct; see also Figure 8. Although the search engine can add the correctly spelt term "Lincoln" into the dictionary file for use in a search query, it also has to ensure that only correctly spelt terms are used when searching for the files. This is an entirely different approach compared to how the current invention works. In the current invention, incorrectly spelt terms are included in the synonym set that is searched and that references to the correct entries in the reference set. The synonym set including incorrect spellings is subjected to the search, thus enabling the system to tolerate writing variations in the input data and thus in the search term.

This is an essential distinction between the current invention and Borkovski, and is not suggested by any of the other prior art as well.

Furthermore, as mentioned in the last paragraph on page 4 of the Office Action, Borkovsky does not disclose or suggest determining if a synonym candidate and the value of the data field fulfill a predetermined synonym acceptance criterion based on at least one quality parameter, wherein said at least one quality parameter takes into

account writing variations that are evaluated based on differences in the value of the data field and the synonym candidate. The Examiner considers, on page 6 of the Office Action, that this is disclosed by Church in column 3, lines 60-64 and in Table C in column 4. However, even if this is read in combination with Borkovski and Toner, this combination would still not disclose or suggest the inventive claimed concept explained above, and therefore, the applicant respectfully submits that the claimed invention involves an inventive step on Borkovsky in combination with Toner and Church.

Based on the above, independent Claims 1, 21, 24-26, 28, 29, and 31, as amended, are allowable over the cited art.

At least based on the above reasons, Claims 2-5, 7-20, 22-23, 27, and 30, which depend from Claims 1, 21, 27, 28, or 29, are likewise allowable at least due to their dependencies from allowable independent claims and additional features recited therein.

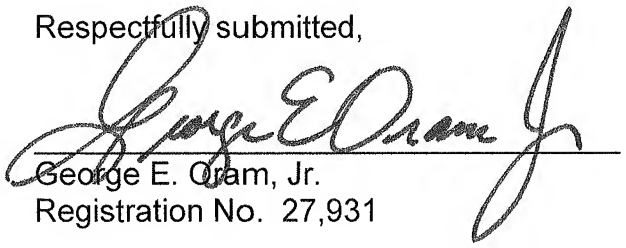
Conclusion

In view of the foregoing, reconsideration of the application, withdrawal of the outstanding rejections, allowance of the currently pending claims, and the prompt issuance of a Notice of Allowability are respectfully solicited.

Should the Examiner believe anything further is desirable in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

In the event this paper is not considered to be timely filed, Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, **referencing docket number 108800-00007**.

Respectfully submitted,



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